

WHAT IS CLAIMED IS:

1. A server computer protection apparatus for protecting a server computer against attacks, comprising:

a data request acceptance unit configured to accept data requests sent from client computers, as proxy for the server computer;

at least one request measurement unit configured to measure a number of data requests which have arrived from said client computers within a predetermined time period;

a response measurement unit configured to measure a number of responses which have been made from said server computer to said client computers within the predetermined time period;

at least one server load calculation unit configured to obtain a load state of said server computer by using measurements of said first measurement unit and said second measurement unit; and

a data request transfer unit configured to change a rate of the number of data requests based on the load state determined by said server load calculation unit.

2. The server computer protection apparatus as set forth in claim 1, wherein said server load calculation unit determines the load state from at least the number of data requests which are to be transferred to said server computer within said predetermined time period, relative to the number of data requests which have been accepted by said data request acceptance unit within said predetermined time period.

3. The server computer protection apparatus as set forth in claim 2, wherein

in a case where said data request transfer unit has judged that a load of said server computer increases from said load state of said server computer as obtained by said server

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

load calculation unit, the rate of said number of the data requests which are to be transferred to said server computer is decreased; and

in a case where said data request transfer unit has judged that the load of said server computer decreases, the rate of said number of the data requests which are to be transferred to said server computer is increased.

4. The server computer protection apparatus as set forth in claim 1, further comprising:

a load state storage unit configured to store said load state of said server computer;
wherein said server load calculation unit changes the value stored in said load state storage unit, in accordance with a new load state of said server computer; and

wherein, as said changed value stored in said load state storage unit exhibits a higher load, the rate of said number of the data requests which are to be transferred to said server computer is decreased by said data request transfer unit; and

wherein, as said changed value stored in said load state storage unit exhibits a lower load, the rate of said number of the data requests which are to be transferred to said server computer is increased by said data request transfer unit.

5. The server computer protection apparatus as set forth in claim 2, further comprising:

a response amount measurement unit configured to measure the size of the responses made from said server computer to said client computer within said predetermined time period;

wherein said server load calculation unit determines the load state from the size of the responses made from said server computer and as the measured size of the responses increases, the load is calculated to be higher by said server load calculation unit.

6. The server computer protection apparatus as set forth in claim 2, further comprising:

a re-response detection unit configured to detect that the response from said server computer to said client computer has been resent;

wherein said server load calculation unit determines the load state from re-response detection and, when said re-response detection unit has detected a resending, the load of said server computer which has resent said response to the data request of said client computer is calculated to have become higher by said server load calculation unit.

7. A server computer protection apparatus as set forth in claim 2, further comprising:

a communication state detection unit configured to detect if said client computer has been forcibly cut off and to detect if any abnormality in a communication state exists;

wherein the said server load calculation unit determines the load state from detected state and, when said communication state detection unit has detected a forced cut off or an abnormal communication, the load of said server computer as corresponds to said client computer is calculated to have become higher by said server load calculation unit.

8. The server computer protection apparatus as set forth in claim 2, further comprising:

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER ^{LLP}

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

a connection detection unit configured to detect a new connection from said client computer;

wherein said server load calculation unit determines the load state from the detected new connection and, when said connection detection unit has not detected a new connection within said predetermined time period, the load of said server computer as corresponds to said client computer is calculated by said server load calculation unit to have become lower.

9. A server computer protection method for protecting a server computer, comprising:

accepting data requests sent from client computers, as proxy for the server computer;

measuring a number of data requests which have arrived from said client computers within a predetermined time period;

measuring a number of responses which have been made from said server computer to said client computers within the predetermined time period;

obtaining a load state of said server computer by using the number of the data requests and the number of the responses; and

changing a rate of the number of data requests based on the obtained load state.

10. The server computer protection method as set forth in claim 9, wherein

obtaining the load state from at least the number of data requests which are to be transferred to said server computer within said predetermined time period, relative to the number of data requests which have been accepted within said predetermined time period.

11. The server computer protection method as set forth in claim 9, wherein changing the rate comprises:

lowering the rate of said number of the data requests which are to be transferred to said server computer when a load of said server computer has become higher than the obtained load state of said server computer; and

increasing the rate of said number of the data requests which are to be transferred to said server computer when a load of said server computer has become lower than the obtained load state of said server computer.

12. The server computer protection method as set forth in claim 9, further comprising:

changing a prestored value in accordance with the obtained load state of said server computer as corresponds to said client computer;

lowering the rate of said number of the data requests which are to be transferred to said server computer as the stored value exhibits a higher load; and

raising the rate of said number of the data requests as said stored value exhibits a lower load.

13. The server computer protection method as set forth in claim 10, further comprising:

measuring the size of the responses made from said server computer to said client computer within said predetermined time period;

obtaining the load state based on the size of the responses made from said server computer; and

raising the rate of said number of the data requests as said stored value exhibits a lower load.

14. The server computer protection method as set forth in claim 10, further comprising:

detecting that the response from said server computer to said client computer has been resent; and

obtaining the load state based on the resent detection,

wherein, when the response is resent, the load of said server is increased.

15. A server computer protection method as set forth in claim 10, further comprising:

detecting if said client computer has been forcibly cut off and detecting if any abnormality in a communication state exists; and

obtaining the load state based on the detected communication state,

wherein, when the communication state is a forced cut off or an abnormal communication, the load of said server computer is increased.

16. The server computer protection method as set forth in claim 10, further comprising:

detecting a new connection from said client computer; and

obtaining the load state based on the detected new connection,

wherein, the load of said server decreases when a new connection is detected within said predetermined time period.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

17. A server computer protection apparatus for protecting a server computer against attacks, comprising:

a data request acceptance unit configured to accept data requests sent from client computers, as proxy for the server computer;

an information reception unit configured to receive from said server computer, information on a processing situation of said server computer;

a server load calculation unit configured to obtain a load state of said server computer from the processing situation information received by said information reception unit; and

a data request transfer unit configured to change a rate of a number of data requests based on the load state obtained by said server load calculation unit.

18. The server computer protection apparatus as set forth in claim 17, wherein

said server load calculation unit determines the load state from at least a number of data requests which are to be transferred to said server computer within a predetermined time period, relative to the number of data requests which have been accepted by said data request acceptance unit within the predetermined time period,

wherein, when said data request transfer unit has judged that a load of said server computer has become higher than before, from said load state of said server computer as obtained by said server load calculation unit, the rate of said number of the data requests which are to be transferred to said server computer is set to be lower; and

when said data request transfer unit has judged that the load of said server computer has become lower than before, the rate of said number of the data requests which are to be transferred to said server computer is set to be higher.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

19. The server computer protection apparatus as set forth in claim 17, further comprising:

a load state storage unit configured to store said load state of said server computer as a value;

wherein said server load calculation unit changes the value stored in said load state storage unit, in accordance with a new load state of said server computer;

wherein, as said value stored in said load state storage unit exhibits a higher load, the rate of said number of the data requests which are to be transferred to said server computer is set to be lower by said data request transfer unit; and

wherein, as said value stored in said load state storage unit exhibits a lower load, the rate of said number of the data requests which are to be transferred to said server computer is set to be higher by said data request transfer unit.

20. The server computer protection apparatus as set forth in claims 17, wherein

when said server load calculation unit has judged that a difference between load states of said server computer has risen beyond a predetermined magnitude, from information which was received by said information reception unit upon immediately execution of a process, and information which has been received during execution of a process that is responsive to the data request accepted by said data request acceptance unit and that has already been started by said server computer, the load of said server computer as corresponds to said client computer is calculated to have heightened by said server load calculation unit, and

when said server load calculation unit has judged that a difference between load states of said server computer has decreased beyond the predetermined magnitude as compared with information which was received by said information reception unit

immediately before a process and the information which has been received immediately after said server computer has ended the process that is responsive to the data request, the load of said server computer as corresponds to said client computer is calculated to have lowered by said server load calculation unit.

21. A server computer protection method for protecting a server computer against attacks, comprising:

accepting data requests sent from client computers, as proxy for the server computer;

receiving from said server computer, information on a processing situation of said server computer;

obtaining a load state of said server computer from the processing situation information; and

changing a rate of a number of data requests based on the load state.

22. The server computer protection method as set forth in claim 21, further comprising:

determining the load state from at least a number of data requests which are to be transferred to said server computer within a predetermined time period, relative to the number of data requests which have been accepted by said data request acceptance unit within the predetermined time period;

lowering the rate of said number of the data requests which are to be transferred to said server computer when the load state increases; and

raising the rate of said number of the data requests which are to be transferred to said server computer when the load state decreases.

23. The server computer protection method as set forth in claim 22, further comprising:

storing said load state of said server computer as a value;

changing the value stored in said load state storage unit, in accordance with a new load state of said server computer;

lowering the rate of said number of the data requests which are to be transferred to said server as said value stored exhibits a higher load; and

raising the rate of said number of the data requests which are to be transferred to said server computer as said value stored exhibits a lower load.

24. The server computer protection method as set forth in claims 22, further comprising:

raising the load of said server computer corresponding to said client computer when a difference between load states of said server computer during the predetermined times has risen beyond a predetermined magnitude; and

lowering the load of said server computer corresponding to said client computer when a difference between loads of said server computer during the predetermined times has lowered beyond the predetermined magnitude.

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GARRETT &
DUNNER LLP

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